

## PATENT COOPERATION TREATY

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## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	<b>FOR FURTHER ACTION</b> See Form PCT/PEA/416	
International application No. PCT/EP2004/005499	International filing date (day/month/year) 21.05.2004	Priority date (day/month/year) 09.06.2003
International Patent Classification (IPC) or national classification and IPC C11D3/39, C11D3/395		
Applicant UNILEVER PLC et al		
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 4 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau a total of 4 sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (Indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>		
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>		
Date of submission of the demand  03.12.2004	Date of completion of this report  31.05.2005	
Name and mailing address of the international preliminary examining authority:   European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer  Richards, M  Telephone No. +31 70 340-4267	

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**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/EP2004/005499

**Box No. 1 Basis of the report**

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
  - ☐ This report is based on translations from the original language into the following language, which is the language of a translation furnished for the purposes of:
    - ☐ international search (under Rules 12.3 and 23.1(b))
    - ☐ publication of the international application (under Rule 12.4)
    - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements\*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

**Description, Pages**

1-17 as originally filed

**Claims, Numbers**

1-6 as amended (together with any statement) under Art. 19 PCT

☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/EP2004/005499

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**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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1. Statement

Novelty (N)	Yes: Claims	1-6
	No: Claims	
Inventive step (IS)	Yes: Claims	1-6
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-6
	No: Claims	

2. Citations and explanations (Rule 70.7):

**see separate sheet**

**INTERNATIONAL PRELIMINARY  
REPORT ON PATENTABILITY  
(SEPARATE SHEET)**

International application No.

PCT/EP2004/005499

**Item V**

There is no disclosure in any of the art cited on the international search report of a liquid bleaching composition according to claim 1, and it follows that there is also no disclosure of a method using said composition according to claim 6.

Novelty of claims 1 - 6 is thus acknowledged.

The present application addresses the problem of providing an air bleaching composition which has improved storage properties whilst being active in use.

US2002/0198127-A1 (A1) is taken as the closest prior art.

D1, see claims 1 - 38, discloses an aqueous liquid cleaning composition having a pH of at least 7 comprising an organic substance which forms a complex with a transition metal, the complex being capable of catalysing bleaching of a substrate by atmospheric oxygen, an enzyme stabiliser and further adjuncts.

According to the description, see page 14 para 226 - para 228 and para 234, the stabiliser may be selected from boron-based stabilisers, such as borax, which are typically used with further complexing agents such as sorbitol.

Thus D1 discloses an air bleaching composition which implicitly addresses the problem of storage stability by incorporating additives which enhance the stability of the components of said composition, see also page 2 para 26. Furthermore the aspects of present claim 1 relating to the pH change of the composition upon dilution with water would also be implicitly addressed when using enzyme stabilisers such as the borax-sorbitol system disclosed in D1.

D1 furthermore suggests that the compositions disclosed therein are suitable for dilution in methods of treating textiles, see page 2 para 18.

However D1 makes no disclosure or suggestion to use the organic substances of present claim 1 to solve the aforementioned problem. Furthermore there is no suggestion in any of the cited art that such substances could find use in solving said problem.

Inventivity of claims 1 - 6 is thus acknowledged.

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## We claim:

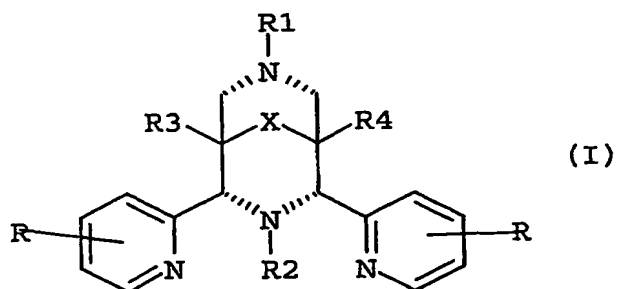
1. A liquid bleaching composition having a pH between 6 and 7 comprising:

5

(a) an organic substance which forms a complex with a transition metal for bleaching a substrate with atmospheric oxygen, the bleaching composition upon addition to an aqueous medium providing an aqueous bleaching medium

10 substantially devoid of a peroxygen bleach or a peroxy-based or peroxy-generating bleach system, wherein the organic substance is selected from the group consisting of:

an organic substance of formula (I):



15

wherein each R is independently selected from: hydrogen, F, Cl, Br, hydroxyl, C1-C4-alkyl, -NH-CO-H, -NH-CO-C1-C4-alkyl, -NH2, -NH-C1-C4-alkyl, and C1-C4-alkyl;

20 R1 and R2 are independently selected from:

C1-C4-alkyl,

C6-C10-aryl, and,

a group containing a heteroatom capable of coordinating to a transition metal, wherein at least one of R1 and R2 is the

25 group containing the heteroatom;

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R3 and R4 are independently selected from hydrogen, C1-C8 alkyl, C1-C8-alkyl-O-C1-C8-alkyl, C1-C8-alkyl-O-C6-C10-aryl, C6-C10-aryl, C1-C8-hydroxyalkyl, and  $-(CH_2)_n C(O)OR_5$

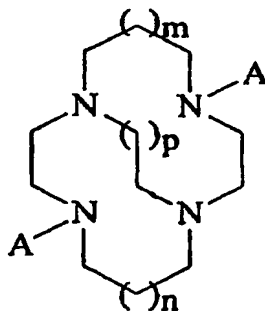
wherein R5 is independently selected from: hydrogen, C1-C4-

5 alkyl, n is from 0 to 4, and mixtures thereof; and,

X is selected from  $C=O$ ,  $-[C(R_6)_2]_Y-$  wherein Y is from 0 to 3

each R6 is independently selected from hydrogen, hydroxyl, C1-C4-alkoxy and C1-C4-alkyl, and

10 an organic substance of formula:



wherein m and n are 0 or integers from 1 to 2, p is an

15 integer from 1 to 6, preferably m and n are both 0 or both 1

(preferably both 1), or m is 0 and n is at least 1; and p

is 1; and A is a nonhydrogen moiety preferably having no aromatic content; more particularly each A can vary

independently and is preferably selected from methyl, ethyl,

20 propyl, isopropyl, butyl, isobutyl, tert-butyl, C5-C20

alkyl, and one, but not both, of the A moieties is benzyl, and combinations thereof;

(b) a pH changing means; and,

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(c) the balance carriers and adjunct ingredients to 100 wt/wt % of the total bleaching composition,

wherein upon dilution of the liquid bleaching composition with water the pH of the liquid bleaching composition enters the range pH 7.5 to pH 9.0.

2. A liquid bleaching composition according to claim 1, wherein upon dilution of the liquid bleaching composition with water the pH of the liquid bleaching composition reaches at least pH 8.0.

3. A liquid bleaching composition according to claim 1 or 2, wherein the pH changing means is provided by a borax sorbitol pH jump composition.

4. A liquid bleaching composition according to claim 3, wherein the liquid bleaching composition comprises at least 2 % wt/wt of sorbitol and at least 1 wt/wt % borax.

5. A liquid bleaching composition according to any one of claims 1 to 4, wherein the organic substance 5,12-dimethyl-1,5,8,12-tetraaza-bicyclo[6.6.2]hexadecane.

6. A method of bleaching a textile comprising the steps of:

(i) diluting from 0.5 to 20 g of a concentrated liquid bleaching composition, as defined in any one of claims 1 to 5, with 1 litre of water, the concentrated liquid bleaching composition having a pH in the range 6 to 7, the liquid bleaching comprising an organic substance which forms a

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- complex with a transition metal for bleaching a substrate with atmospheric oxygen, the bleaching composition upon addition to an aqueous medium providing an aqueous bleaching medium substantially devoid of a peroxygen bleach or a
- 5 peroxy-based or peroxy-generating bleach, the dilution providing an aqueous liquid bleaching composition having a pH in the range from 7.5 to pH 9.0;
- (ii) treating a textile with the aqueous liquid bleaching composition; and,
- 10 (iii) rinsing the textile with water; and,
- (iv) drying the textile.



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